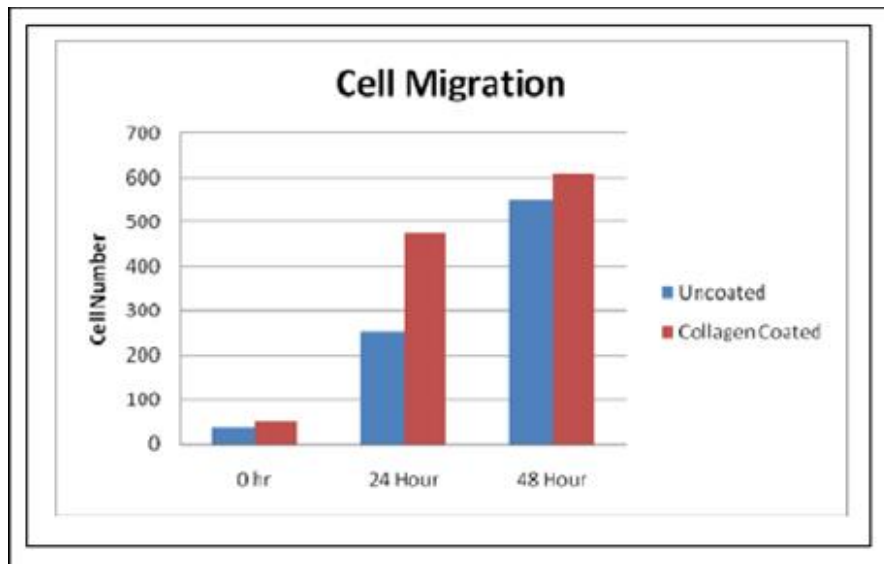


**TATRC Highlighted Research News Article:
“Advanced Bioengineering for Soldier Survivability”**

August 18, 2009

Contact: Lori DeBernardis, 301-619-7927

New Promise in Making Wounded Warriors Whole



The Center for Advanced Bioengineering for Soldier Survivability is exploring ways to deliver stem cells to help heal severe combat injuries. This graph illustrates the center’s finding that stem cells migrate more effectively onto nanofiber mesh placed in a wound when the mesh is coated with collagen.

Image courtesy of CABSS

Laboratories worldwide are exploring the healing possibilities of stem cell therapies, but one innovative team is focusing exclusively on translating this research into real care for the wounded Soldier. The Center for Advanced Bioengineering for Soldier Survivability (CABSS) at the Georgia Institute of Technology marks its first anniversary this fall with several exciting advances that may lead to new reconstructive technologies for injuries to the head, neck and limbs.

Stem cells are unspecialized cells that can regenerate into other types of cells. Much promise lies in the idea of using stem cells from the patient’s bone marrow and fat tissue to regrow tissue following traumatic injury. However, efforts to deliver these cells effectively have been limited.

Says CABSS director Dr. Barbara Boyan, “Stem cells must be placed in a more precise and reliable manner than is now used. At present, they are injected with the hope that they will migrate to where they are needed, and many don’t reach or stay at the site.

“We are having success in animal models by placing stem cells either surgically on a nanofiber mesh ‘scaffold’ in the wound or through the skin via microbead injection. Our microbeads can be tuned precisely so the physician knows how many viable cells he or she is implanting. These technologies not only ensure that the cells wind up at the injury site, but also that they will stay in the site long enough to help heal and regenerate tissue.”

New regenerative and reconstructive technologies are critical in light of the increasing number and severity of combat injuries suffered by service members. While many wounded warriors are surviving due to advances in body armor and immediate medical care, they require advanced treatment to regain function and appearance after devastating blast injuries to the arms, legs and face.

Boyan and her colleagues at Georgia Tech believe their center is uniquely positioned to apply advanced biological knowledge to benefit injured warfighters because it is based in an engineering institution.

Says Boyan, “Engineers are problem solvers, driven to produce devices that make things work. By combining this approach with the work of cell biologists and clinicians to address medical needs, we are able to move much more quickly to tackle the problems now facing our military.”

Boyan reports that her team is particularly excited about their discovery of a certain collagen peptide that can be used on a scaffold to help it attract cells and facilitate healing. This could be particularly useful in the repair of facial bone structures. The peptide has been licensed to an orthopedic company to begin clinical trials.

Another technology that involves microbeads for cartilage repair is now in clinical trials with a partner corporation. The team hopes to have other technologies ready to go to clinical trials within three years.

The U.S. Army Medical Research and Materiel Command’s (USAMRMC) Telemedicine and Advanced Technology Research Center (TATRC) is one of the center’s funding sources. TATRC brings together military and other federal agencies and strategically directs Congressional funding to best address the medical needs of service members. Says TATRC Director Col. Karl Friedl, “We are pleased to help with seedling money for this new effort that shows such immense potential. The researchers are taking important steps to move medical advances more rapidly into practical use for our warfighters.”

Boyan adds, “We at CABSS are driven to get these technologies ready for clinical use. We ask our military to protect us, and in return we want to do all we can to make life better for our injured service members.”